

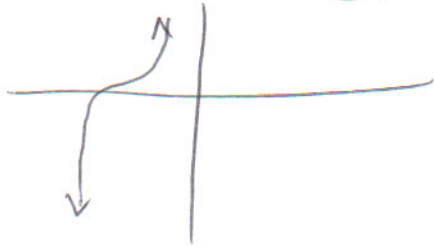
# PRACTICE TEST SOLUTIONS

1.)	Degree	+/- L.C.	y-int	Max# T.P.	Min# zeros
$f(x)$	3	-	10	2	1
$g(x)$	2	-	1	1	0
$h(x)$	5	+	0	5	1
$f(x)$	4	+	64	3	0

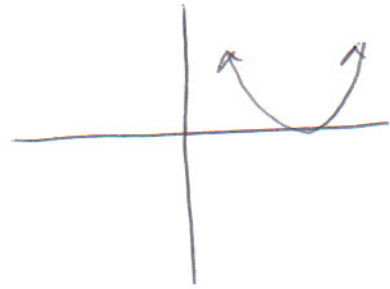
2.)	Max T.P.	Min T.P.
Even degree	$n-1$	1
Odd degree	$n-1$	0

All based on end behaviours

3) Cubed (or odd)  
↳ bends through axis



4 (or even)  
bounces



$$\begin{aligned} 4) \quad h(3) &= 3^5 - 3^4 - 2(3)^3 + 8(3)^2 - 6(3) \\ &= 243 - 81 - 2(27) + 8(9) - 18 \\ &= 243 - 81 - 54 + 72 - 18 \\ &= 162 \end{aligned}$$

∴ the remainder is 162 and  $x-3$  is not a factor

$$5) \quad y = a(x-1)(x)(x+1)$$

sub in  $(0.577, -0.3849)$  to find  $a$ .

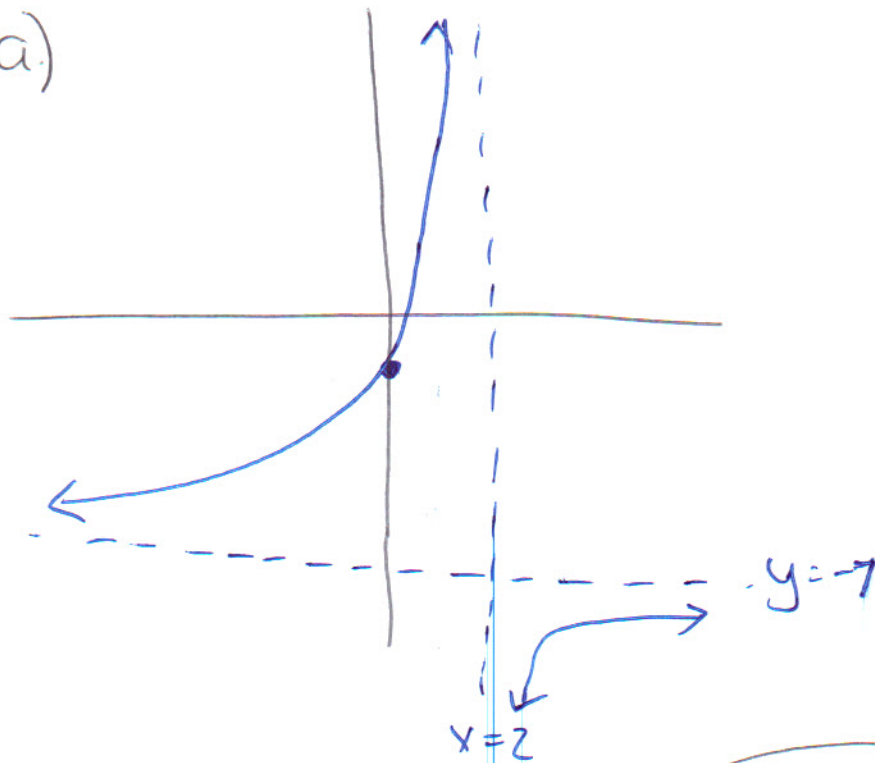
$$-0.3849 = a(0.577-1)(0.577)(0.577+1)$$

$$-0.3849 = a(-0.3849)$$

$$a = 1$$

$$\therefore y = x(x-1)(x+1)$$

b.) a.)



b) We start with  $\boxed{\frac{-7x + C}{x - 2}}$  H.A. @  $-7$   
y-int will find  
V.A. @  $x=2$

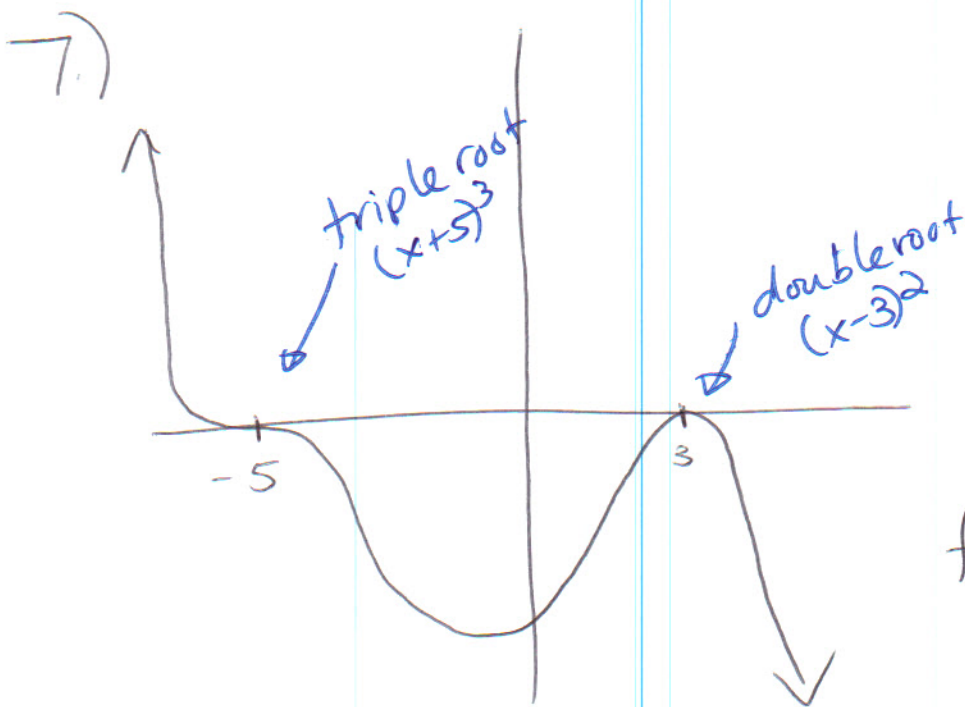
use y-int: set  $x=0$

$$-1 = \frac{-7(0) + C}{0 - 2}$$

$$-1 = \frac{C}{-2}$$

$$2 = C$$

$$f(x) = \frac{-7x + 2}{x - 2}$$



5<sup>th</sup> degree  $\rightarrow$   
many  
combinations  
of roots  
here.

$$f(x) = a(x+5)^3(x-3)^2$$

a would be  
negative based on  
end behaviours

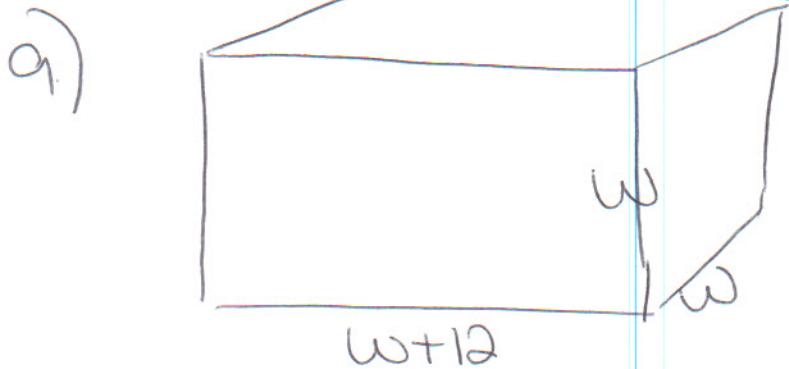
MANY  
POSSIBLE  
ANSWERS

7)  $(4x-9)(x+2)(x-3)(x+5)$

8)

$$\begin{array}{r|rrrrr} & 6 & -6 & 5 & -12 & 1 \\ -2 & \downarrow & -12 & 36 & -81 & 186 \\ \hline & 6 & -18 & 41 & -93 & 187 \end{array}$$

$$6x^3 - 18x^2 + 41x - 93 \text{ R } 187$$



$$w^2(w+12) = 135$$

$$w^3 + 12w^2 = 135$$

$$w^3 + 12w^2 - 135 = 0$$

~~$$w^3$$~~ 
$$(w-3)(w^2 + 15w + 45) = 0$$

$$w = 3, \quad \frac{-15 - 3\sqrt{5}}{2}, \quad \frac{-15 + 3\sqrt{5}}{2}$$

$\therefore w = 3$

dimensions are  $3 \times 3 \times 15$

10.) Sorry about printing mistake.  
p. 286 # 10 in textbook

machine A takes  $s$  minutes  
machine B takes  $s+10$  minutes

rates:  $\frac{\frac{A}{1 \text{ case}}}{s \text{ minutes}} \quad \frac{\frac{B}{1 \text{ case}}}{s+10 \text{ min}} \quad \frac{\frac{A+B}{1 \text{ case}}}{15 \text{ min}}$

$$\frac{1}{s} + \frac{1}{s+10} = \frac{1}{15}$$

I'm changing  $s$  to  $x$ . just because

$$\frac{1}{x} + \frac{1}{x+10} = \frac{1}{15}$$

$$\frac{(x+10) + x}{(x)(x+10)} = \frac{1}{15}$$

$$\frac{2x+10}{x(x+10)} = \frac{1}{15}$$

$$15(2x+10) = x(x+10)$$

$$30x + 150 = x^2 + 10x$$

$$0 = x^2 - 20x - 150$$

$$x = \frac{20 \pm \sqrt{400 + 6000}}{2}$$

$$x = \frac{20 \pm \sqrt{6400}}{2}$$

~~50, 150~~  
inadmissible  
working together  
machine A takes  
50 min  
machine B takes  
150 min